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AUTHOR Campbell, Patricia B.; Spector, Deborah
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ABSTRACT

This document is a list of materials available to assist in teaching introductory education research courses. It was compiled as an attempt to fill the void created by a lack of communication among instructors regarding available materials. All types of materials, except textbooks, were considered. The list is divided into categories of books, workbooks, tapes, films, filmstrip and tape combinations, modules, handouts, and computerized materials. Within each category, the materials are divided into the following content areas: (a) basic research, (b) developing problems and hypotheses, (c) instrumentation, (d) sampling, (e) design, (f) statistics, (g) critiquing research, and (h) writing research. Each entry includes an abstract, name and address of the supplier, content area, type, cost, and, where appropriate, the comments of reviewers. (PB)

ED104835

Teaching Introductory Educational Research: Some Available Materials

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NATIONAL INSTITUTE OF EDUCATION
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Patricia B. Campbell, Ph.D.
Deborah Spector
Ceorgia State University
Atlanta, Georgia

Courses in educational research or methods of educational research are rapidly expanding in colleges and universities throughout the country. One of the reasons for this increase is a growing desire on the part of state education agencies to have teachers who are interested and discriminating consumers of educational research. Generally an attempt is made to reach this goal by requiring a course in methods of research in education for all that desire certification.

While the goal is worth while it is a difficult one to attain. A course on educational research attracts a wide range of people.

It is not unusual to have people who have never read a research article in the same class with people who are currently doing their own research. A traditional lecture oriented course geared to the skills and experiences of the average student has great difficulties meeting the needs and interests of a vast majority of the students. Without that interest much of the work of educational researchers remains on library shelves unused and unapplied. An obvious answer to this problem is to provide a variety of materials that can be used by students in the areas of educational research courses that are skill building areas. This unfortunately is not an easy task. One of the major difficulties is that developing materials is difficult, expensive and time consuming. At this point in time, full scale materials development is too expensive and operation for most American colleges. More importantly, it is an operation that is some what unnecessary. Many materials for teaching educational research have already been developed.

Unfortunately there has been little communication among instructors of educational research in terms of materials that are available.

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This list of available materials to assist in teaching introductory educational research courses is a partial attempt to fill the void. Although this list of materials is neither complete nor comprehensive, an attempt was made to tap a wide variety of sources. Catalogues from every publisher of educational materials were obtained and examined for possible materials. If money or publisher policy permitted, a copy or set of the materials was obtained for evaluation. Requests for materials or for sources of materials were placed in the newsletter of the special interest group of the Professors of Educational Research of the America Educational Research Association, the Educational Researcher and the CEDR Quarterly. Follow-up was made on the materials listed in the Professors of Educational Reseacher's Survey in Susan Klein's, "An Analysis of R & D Materials for Educational R & D Personnel Development" and in Evon Guba and William Gephart's report on "Training Materials for Research, Development and Diffusion Training Programs. Letters were also sent to the Regional Research and Development Laboratories requesting any materials or knowledge of materials that they might have.

All materials, other than textbooks, that could be used in the instruction of an introductory educational research course were considered within the scope of this list. Textbooks were not considered because of the lists of textbooks already available and because of the availability of textbooks for instructor evaluation.

Both mediated and non-mediated materials were considered in this list. The list is broken down into categories of books, workbooks, tapes, films, filmstrip and tape combinations, modules, handouts and computerized materials.

Wherever possible the materials have been evaluated by basic research students, a graduate student in research and an assistant professor of educational research. The materials were assessed in terms of their level of difficulty, interest, userability and clarity of presentation. Personal comments about the materials

and their use were also given by all concerned.

The following list includes an abstract of each material, the name and address of its supplier, its content area, type, cost and where appropriate the comments of reviewers.

Within each category the materials were divided into content areas. These content areas are: Basic Research, Developing Problems and Hypothesis, Instrumentation, Sampling, Design, Statistics, Critiquing Research and Writing Research.

Books

Content Area

Basic Research

Behling J., Research Methods, Statistical Measures and the Research Practicum
Dr. John Behling
School of Social Work
Ohio State University
Columbus, Ohio

Although this book is not an education book, it is a "basic research" book with a good coverage of descriptive statistics and an introduction to inferential statistics. It would be useful to give to a student with no background to "catch up." It also covers various sociological instruments and their construction quite well. Although it does not hold one's interest very well it is very clearly written with the beginner in mind.

Leedy, P. Practical Reseach: Planning and Design $5.95
MacMillan Company
860 3rd Ave.
New York, New York 10022

This book is designed to be a step by step guide to planning and designing a research project. Although it identifies itself as being practical rather than theoretical, it includes some theory as it carries the student through the tools of research, research planning and design, methodologies of research design and presenting the results. It includes a sample proposal that has been critique and a comprehensive excercise for the student to use to construct his (her) own proposal. This book is both clearly written and interesting. Introductory students have responded positively to it.

Statisitics

Child, D. The Essentials of Factor Analysis $4.95
Holt, Rinehart and Winston
383 Madison Street
New York, New York

This book is an overview of factor analysis for the mathematically unsophisticated researcher. It goes into the origins, purposes, limitations and interpretations of factor analysis as well as giving a geometric explanation of the procedure. The rotation of factors and examples are also discussed. This book may be too advanced for some basic research students because a math background in geometry and trigonometry is necessary for understanding the concepts presented. Research students with the necessary background should find this book clear, interesting and helpful.

Critiquing Research

Millman, J. and D.B. Gowan. Appraising Educational Research $4.95
Prentice - Hall Publishers
Englewood Cliffs, New Jersey

A series of eight articles covering six types of research are presented to the reader to critique in this book! Each article is followed by a series of questions and answers pertaining to the critiquing processes as it applies to the individual article. The book is very useful one for beginning research students as it gives them an excellent idea of the process of critiquing research. The first several articles work well with students but many of the technical comments on the later articles are too advanced for many students. Most students have felt that the book was vey worthwhile but difficult.

Writing Research

Krathwohl, D. How To Prepare A Research Proposal $1.00
Syracuse University Bookstore
303 University Place
Syracuse, New York 13210

This book contains a step by step procedure for writing a research proposal for funds. It covers each section of a proposal including what should be included and why, as well as giving comments on the appropriate style and format to be used.

Also included are possible sources of weaknesses in design and analysis and an outline/checklist to follow while writing the proposal. This book is extremely helpful for researchers at all stages of background and experience. Students rate it very highly and have found it most helpful as a guide for thesis writing.

Computerized Materials

Content Area

Statistics

Computer Exercises for Elementary Statistics Text $4.00 Programs $15.00
Dersham, H.L. Project Compute
Keivit Computer Center
Dartmouth College
Hanover, N. H. 03755

This set of materials consists of forty nine exercises which make use of the computer to assist in learning introductory statistics. The excercises do this by using actual data for data analysis, providing graphic illustrations and simulations. The ststem can be used by batch FORTRAN and time-shared BASIC SYSTEMS.

Weed, H. J. Descriptive Statistics Text $4.00 Programs $15.00
Project Compute
Keivit Computer Center
Dartmouth College
Hanover, N.H. 03755

This set of materials provides a discussion of methods and uses as well as an introduction to statistical calculations using the computer. Methods for describing and summarizing raw data are also discussed.

Fraiser, M.D. Automated Statistics Laboratory User's Guide (in development stage)
Martin D. Fraiser
Mathematics Department
Georgia State University
Atlanta, Georgia 30303

ASL is an interactive program consisting of eight experiments dealing with sampling and calculations of the power curve. The experiments cover procedures, distribution and computation of statistics. Its purpose is to help the student perform complex experiments with good consist/accuracy and little time lag. Although a naive student user can't use ASL independently, it can be used within the structure of a statistically oriented basic research course.

Films

Content Area

Basic Research

Open University, School to School — $275.00, $10.00 preview
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

A case study of research into the transition of students from elementary to secondary school is described in this film. The problem of transition is demonstrated and through the demonstration the various stages of the research problem are shown.

Open University, Student Project — $150.00, $10.00 preview
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

A discussion of the problems involved in carrying out a research project is shown in this film. Particular attention is paid to the skills and problems involved in data collection.

Instrumentation

Open University, Interviewing — $150.00, $10.00 preview
Harper and Row, Publishers
10 East 53 rd Street
New York, New York 10022

This film explains the techniques of interviewing as a method of data collection.

Open University, Reliability and Error — $150.00, $10.00 preview
Harper Row, Publishers
10 East 53rd Street
New York, New York 10022

An introduction to the concept of error in educational measurement is explored in this film. The causes of error with examples and demonstrations are discussed. The question of how to estimate error is also examined.

Design

Open University, Experimental Design — $150.00, $10.00 preview
Harper Row, Publishers
10 East 53rd Street
New York, New York 10022

This film introduces a case study in experimental design. The example that

is used is a new method of teaching fractions to slow learners.

Statistics

Open University, Factor Analysis $150.00, $10.00 preview
Harper Row, Publishers
10 East 53 rd Street
New York, New York 10022

The conceptual stages involved in carrying out a factor analysis are described and discussed in this film.

Open University, Significance and the Normal Distribution $150.00, $10.00 preview
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This film concerns the concepts of statistical and practical significance in educational research. Examples are given using the comparison of test performance of advantaged and disadvantaged children.

Filmstrip / Tape Packages

Content Area

Developing Problems and Hypothesis
Popham, W. J. Educational Objectives — about $10.00
VIMCET Associates
P. O. Box 24714
Los Angeles, California 90024

This filmstrip/tape combination uses comic characters and a light tone to teach beginning research students to write behavioral objectives. By using a question and answer format, the materials set gets the student actively involved in the learning process. Students have found it a painless effective way to be introduced to operationalizing concepts and ideas.

Objectives for Instructional Programs — $95.00
Instructional Systems Group
One City Boulevard West Suite 936
Orange, California 92668

This set of materials is concerned with training people to operationalize and use concepts and ideas. This is done through the use of tape, filmstrip and paper and pencil materials. Flexible enough to be used as a half day workshop or expanded into a full quarter course, this set of materials includes information on behavioral objectives, the taxonomies, classifications within the taxonomies, operational definitions and measurement.

Designs

Popham, W.J.
Experimental Designs for School Research — about $10.00
VIMCET Associates
P. O. Box 24714
Los Angeles, California 90024

This set of materials is a filmstrip/tape combination that deals with research designs, their strengths and weakenesses and their uses in educational research. The interactive format and the step by step instruction have contributed to this filmstrip/tape being regarded by students as being both helpful and interesting.

Handouts

Content Area

Basic Research
Ingle, R.B. and W.J. Gephart
Introduction to Educational Inquiry: A proposed Course Outline
William Gephart
Phi Delta Kappa
8th and Union Street
Bloomington, Indiana 47401

Although most of the materials in this list are directed toward the student it was felt to be important to include this report, directed toward the instructor. This report is an outline of a basic educational research course, including objectives, suggested requirements, activities and major concepts to be covered. Synthesized from the discussion of the 1970 National Symposium for Professors of Educational Research, this outline is most useful to those who are teaching the course for the first time or who are reversing their existing course. Other course outlines, objectives and book lists are available from:

Patricia Campbell	James Cooper	Richard Jaeger
Educational Foundations	Educational Foundations	School of Education
Georgia State University	University of New Mexico	University of South Florid
Atlanta, Georgia 30303	Albuquerique, N.M. 87131	Tampa, Florida 33620

Raths, Activities to Increase Research Skills
Dale G. Merkle
Shippensberg State College
Shippensberg, Penn. 17257

This series of six short activities help the student to understand sources of invalidity, assumptions, generalizability, hypothesis, reliability and validity and operational definitions. Each activity gives the student information about the concept and asks the student to apply the information in several different ways. The activities are short, (3 pages each) supplements to the textbook and the lectures. The activities on sources of invalidity and assumptions are particularly useful.

Design

Rosemier, R.
The Latin Square, The Paired Comparison and the Random Block Design
Dr. Robert Rosemier
Professor of Education
Northern Illinois University
Dekalb, Illinois 60115

Each of these three handouts describes a design, its advantages, an example of a study using the design and the appropriate statistics necessary for analyzing the design. The handouts are short , well written and quite clear but students with no previous statistics backgroung have tended to get lost in the analysis section of each handout. The more advanced student has found them helpful.

Statistics

Rosemier, R. Size of Sample, Estimating W and Type II Error and Power
Dr. Robert Rosemier
Professor Education
Northern Illinois University
Dekalb, Illinois 60115

These three short handouts deal with several ways of calculating power and sample size. Although they go beyond the level of most introductory research students, they are useful for those who go beyond the introductory course.

Rosemier, R. The Chi Square Statistics
Dr. Robert Rosemier
Professor of Education
Northern Illinois University
Dekalb, Illinois 60115

This nine page handout covers the chi-square statistic, its assumptions, uses and computations for the beginning research student. The handout goes through examples of the chi-square being used to determine "goodness of fit" and to conduct a test of independence. Students response to this handout has been very positive.

Rosemier, R.
Dr. Robert Rosemier Testing Proportions and Independent and Dependent Proportions
Professor of Education
Northern Illinois University
Dekalb, Illinois 60115

The first two handouts present two different ways of viewing interaction; double correlation and expected means. The third and fourth handouts deal with hypothesis testing of independent and dependent proportions. In all four cases the

handouts are too advanced for the average introductory research student but may be useful for those who go beyond the introductory course.

Writing Research

Roger Crane
College of Education
Brock University, Region Niagrara
St. Catharines, L253A1 Ontario, CANADA

This thirty page handout is a step by step process to assist students in writing their thesis. It goes through the various sections of a research report and, what should be included in each. It also covers appropriate formats for text and tables and helpful hints. The light style and clean writing make this an easy handout to "read and heed."

Flanders, N. Some Questions that May be Useful in Planning Educational Research

Ned Flanders
Far West Laboratory for Educational Research and Development
1855 Folcom Street
San Francisco, California 94103

This eight page handout presents six major questions that should be answered in a research report. These include what is the problem, what have others found out about it, what hypothesis are being investigated, what procedures are being used, what the results are and what conclusions are justified. These questions and the discussion following each question raise many important points for students to consider in writing a research report.

Harootunian, B. Elements of a Proposal

Benj Harootunian
Teacher Education
Syracuse University
Syracuse, New York 13210

This three page handout gives a list of the areas to be covered in a research proposal and outlines some important considerations under each topic. Students have found it useful both as a guide to writing and a check list to determine if all pertinent areas have been covered.

Milner, S. Guidelines for Preparing the Research Proposal

Dr. S. Milner
Room 237 O'Boyle Hall
Catholic University of America
Washington, D.C. 20017

This five page handout is a general statement of guidelines for preparation of a research proposal. It covers the general information that should be included in a proposal and gives nine evaluative questions for the student and the instructor to use to assess the proposal. Also included is a short bibliography of books relevant to future and current proposal writers.

Self-Instructional Modules

Content Area

Basic Research

Wick, J. M. Self Instruction Units on Evaluation and Research $260.00 (26.00/unit)
B. Claude Mathis, Director
Center for the Teaching Professions
North Western University
2003 Sheridan Road
Evanston, Ill. 60201

This set includes eleven independent self-instructional units primarily devoted to measurement and data manipulation in research and evaluation. Each unit uses handouts, worksheets, slides and tapes to bring the student to mastery. Each unit also includes a test to determine if the student has mastered the units objectives. Units may be used alone or in series with the other units. The following is a description of the information contained in each unit.

UNIT I, "Overview," introduces the entire program and covers several data collection plans plus the question of sampling. Topics include:

survey vs. sample survey-- survey vs. questionnaire--- justifying a survey -- mail surveys -- population -- types of data -- types of surveys -- types of sampling designs -- levels of content analysis; cautions -- unique characteristics, sources, and bias in historical research -- types and problems of developmental studies.

UNIT II, "Experiments: Testing Statistical Hypotheses," concerns itself with the experiment itself, the results, and sources of error. Topics include:

stating the general problem -- liking the problem -- defining measures -- stating statistical and research hypotheses -- performing the experiment -- probability distribution -- comparing the results to the statistical hypothesis -- making a conclusion -- type I error -- type II error -- level of significance.

UNIT III, "Avoiding Common Errors in Evaluation and Research," begins with a review of the hints and cautions included in the other ten units, and continues with cautions in the following four areas of experimental design:

defining and controlling variables -- choosing a sample and making inferences from it -- construction artificial stimulus and response situations in the assessment phase -- providing for reliable interpretation of results.

UNIT IV, "Questionnaire Construction," presents basic guidelines for preparing a questionnaire from deciding whether to use one through planning follow-up procedures. Topics include:

Is the questionnaire the best technique? -- advantages and disadvantages -- specific steps to follow, from defining population to preparing report -- appearance -- information to include -- directions -- cover letter -- mailing -- follow-up efforts--

techniques for non-responders -- decisions about content and wording -- item formats -- special scaling formats.

UNIT V, "Selecting and Using Standardized Tests" is an introduction to the classification of standardized tests and types of item formats. Topics include:

How to find a measure you need -- differences between standardized and non-standardized tests -- common classification of standarized measures -- maximum performance tests classfied by use -- typical performance tests classified by use -- cautions in typical performance tests -- types of item formats -- cautions in choosing item formats.

UNIT VI. " Technical Issues in Testing," considers standards of comparison for tests and matters of test accuracy. Topics include:

norm-referenced measures (method of construction, key ideas, test items, uses reporting scores) -- criterion referenced measures (same information) -- validity-- reliability -- standard error of measurement -- cultural bias.

UNIT VII,"Data Collection by Interview" introduces the characteristics of the interview as a data gathering technique, and presents step-by-step procedures. Topics include:

characteristics -- potential uses -- prior considerations -- defining your research problem -- specifying the objectives of the study -- considerations in the design of the study -- choosing the sample -- type of questions to ask -- wording and question order -- importance of setting the atmosphere -- initial impression -- guidelines for questioning -- recording responses -- using probes -- closing the interview -- tabulation and analysis of results -- errors caused by interviewer's personality and approach -- recording errors -- non-respondents.

UNIT VIII,"Data Presentation Techniques" deals with various kinds of charts, graphs, and tables that are frequently used to present data in final reports. Topics include:

ordered vs. unordered categories -- frequency distribution -- simple vertical or horizontal bar graphs -- frequency polygon -- cumulative display (ogive) -- compound bar graph -- component bar graph -- bilateral bar graph -- "pieces of pie" display -- some things to avoid in charts -- scatter diagrams (data trend charts) -- rules for creating tables -- purpose of tables -- gathering and interpreting data for tables -- cautions.

UNIT IX " A Layman's Introduction to Computer Applications," orients the neophyte to the computer including how it works and how it can help him. Topics include:

computer characteristics -- data processing vs.computing vs. computer -- input, handling, and output processes -- related machines for the computer user -- steps in writing a program -- computer storage and tabulation of survey results and tests -- computer simulation -- computer assisted instruction and computer managed instruction -- national data bank.

UNIT X,"Hints for Project Evaluators" is designed as a guide for project directors and project evaluators. Topics included:

impact of the program -- project "promises" -- budget -- prior commitments and real power -- timetable -- continuous outcome vs. intervention evaluation -- consideration in a continuous assessment model -- the evaluator as a communications facilitator -- "action now" philosophy -- the evaluator as number interpreter -- evaluating objectives.

UNIT XI,"Specifying Behavioral Objectives" teaches the user how to write and evaluate behavioral objectives. Topics included:

performance terms -- conditions of performance -- criterion level -- cognitive levels (taxonomy) -- verb choick -- why use behavioral objectives -- how to use them -- when to use them -- where to use them -- answering criticisms of behavioral objectives.

Developing Problems and Hyptheses

Hutchinson, T.E. Self Instruction Module for Learning the Hutchinson Method of Operationalizing a Goal or Intent

Thomas E. Hutchinson
School of Education
University of Mass.
Amherst, Ma.. 01002

This module is an attempt to take the user through five steps necessary to operationalizing an idea or concept. Available in tape or paper, the module is a good, fast tool to give to someone who is having trouble with the concept of operationalizing.

Resta, P.E. and R.L. Baker, Selecting Variables for Educational Research $1.25
D. Vern Nostran - Company
300 Pile St.
Cincinnati, Ohio 45202

This paper and pencil module describes approaches to identifying and selecting variables for formulating a research problem. Also included is a brief discussion of the actual statement of the research problem as well as initial information sources to be used in the persuit of solutions to the problem. The information in this module is good and is presented well, giving the student practical information as well as theoretic.

Sullivan, H.J. Classifying and Interpreting Educational Research Studies $1.25
D. Van Nostrand Company
300 Pile St.
Cincinnati, Ohio 45202

This module deals with the different types of variables and studies that are found in educational research. Also included are sections on interpreting the results of educational research and on the uses of various types of studies. The module is in a work book format, in which student exercises are intersperced with text.

Instrumentation

Banathy,B.H. Evaluation
B. H. Banathy
Far West Regional Laboratory
1855 Folsum Street
San Francisco, California 94103

This series of modules prepared by the Far West Labs has several modules that are useful in an introductory research course. The first, Measuremental Testing for Developers and Evaluators is an introduction to reliability and validity. It also covers the selection and use of achievement, aptitude and attitude measures, operational definitions and the differences between norm and criterion referenced measures. The second, The Design of Evaluation Instruments is a six hour introduction to designing instruments. The construction and use of self report instruments are covered as are product-based and performance-based criterion referenced measures. Both of these modules can be used independently.

Instrumentation/Statistics Banathy, B.N.
Information/Data Collection and Organization
B.H. Barnathy
Far West Regional Laboratory
1855 Foisom Street
San Francisco, California 94103

This series of the modules prepared by the Far West Labs has several modules that are useful - an introductory research course. The first, Orientation to Collection and Organizing D, D & E Information and Data, is a four to six hour overview of data collection procedures and applications. It covers methods of conducting a literature review and methods of collecting data through self report and observation. The second module, Data Management, deals with processing data, summarizing tabular data and displaying data. This six and eight hour presentation primarily works with descriptive statistics. Both of these modules can be used independently.

Designs

Popham, W.J. Simplified Designs to School Research $1.25
D. Van Nostrand Company
300 Pike Street
Cincinnati, Ohio 45202

This short paper and pencil module presents seven basic research designs along with the advantages and disadvantages of each. One of the better written modules of the Van Nostrand series, this module provides a good introduction to design for introductory students. Also exercises are included that ask the student to suggest designs that would be most appropriate to specified problems.

Statistics

Wolf, R.M. Choosing an Appropriate Statistical Procedure $1.25
D. Van Nostrand Company
300 Pike Street
Cincinnati, Ohio 45202

This module presents a strategy for choosing an appropriate statistical procedure for analyzing research data. It does this by teaching the student to determine the type, number and scale of the study's variables. The module also includes a table that given the information about a study's variables, lists the test (s) that is appropriate for that study. The module does a good job explaining the relationship between variables and statistics. Beginning students find it very helpful.

Writing Research

Resta, P.E. and R.L. Baker Components of the Educational Research Proposal $1.25
D. Van Nostrand & Company
300 Pike Street
Cincinnati, Ohio 45202

This paper and pencil module has as its goal to put the student in a position to prepare a defensible research proposal by outlining the conditions and requirements of each of the basic components. It covers the title, the problem, the procedures and logistics. Although there are several sets of materials dealing with writing proposals this is one of the few that goes over areas as budget, costs, both direct and indirect, and funding sources. The information

given in good but the student exercises do not seem particulary relevent.

Resta, P.E. The Research Report $1.25
D. Van Nostrand Company
300 Pike Street
Cincinnati, Ohio 45202

This paper and pencil module outlines the requirements and conditions of each of the basic components of a research report. Taking the student from the title to the summary it gives rules, cautions and examples of each component. There are few student excercises in this module but thost that are there are somewhat creative and worthwhile. At the end of the module a checklist for the research report is presented, which would be useful for beginning students who wanted to follow us the module with writing a research report.

Tapes

Content Area

Basic Research

Open Education Research Ideology I and II $10.00
Harper and Row, Publisher
10 East 53rd Street
New York, New York 10022

These two tapes, on one cassette, present an introduction to research aims and objectives in terms of what research is trying to do and why. Pure and applied research are described and discussed as is the role of values in research. Individual researchers speak on their research work and their feelings toward research.

The second tape presents a somewhat idealized view of bias and its effects on research. The political aspects and ramifications of research and dissemination are also discussed.

This tape is an excellent basis for discussion on research responsibilities and ethics for students at all levels. The use of a group of people with a narrator makes the tape more interesting while presenting a variety of ideas. Like much of the Open University material it can stand alone but its references to the other materials are distracting

Open Education Experiment $10.00
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This tape is a very complete description on how an experiment in developmental stages was improved by the use of controls. The original study is presented and its weaknesses are discussed. A contract for each major weakness is described and the results of the new improved study are discussed. If a student is interested in development states the tape is a worthwhile one, however for most students the tape concentrates too much on the example and too little on the sources of error. As with most Open University tapes there are several speakers and although there are references to other materials it can be used alone.

Open Education, Research Philosophy — $10.00 (with no study is perfect)
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This tape discusses the argument that different research methods must be employed for investigation into the social sciences than those used for the natural sciences. The point is put forth that the subjective meaning of behavior must be accounted for as well as the behavior itself. The tape brings out a new view of social science research but is not one of the more interesting tapes in the Open Education series.

Instrumentation

Ebel, R. I. Constructing Tests for Use in Educational Research Association — $8.00
1126 Sixteenth St., N. W.
Washington, D. C. 20036

This tape is a talk by Robert Ebel on cognitive test construction. It includes information on the need for cognitive test construction in research and how to construct tables of specifications, essay items and objective items. Advantage and limitations of various test items are reviewed as are procedures for establishing reliability and validity.

The tape is a good summary of cognitive test construction but suffers because of the format. One man speaking on a tape for a long period of time usually causes the student to become unattentive and this one does.

Open Education, Why Quantify — $10.00 (with Why Sample)
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

The construction of a lichert scale attitude measure of children's attitude toward science is described in this tape. The procedures for construction, field testing and validation are covered as are some of the limitations of the technique.

This tape is very difficult to use because one is not provided with the broadcast notes that are referred to fairly extensively. Also the tape does

not adequately cover the possible threats to the validity of an instrument.

Sampling

Open Education, Why Sample — $10.00 (with Why Quantify)
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

Why Sample is an exercise in graphing and generalizing. By using existing data, of the reading scores of a population, the tape helps the student compare the accuracy of various sample sizes and sampling procedures. This tape has some of the same difficulties as Why Quantify in that it makes use of materials that are not available with the tape. However, the exercise is good enough for an instructor to consider making up her/his own set of notes to be used with the tape.

Design

Open Education, No Study Is Perfect — $10.00 (with Research Philosophy)
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This tape goes through some of the practical and technical constraints that educational researchers must face, including cost, sample, and political constraints. This is done by examining some of the problems that a study, comparing it to a traditional reading, had. The tape is somewhat interesting but it refers so often to unavailable broadcast notes that the student feels that he/she is missing the major thrust of the tape.

Statistics

Kerlinger, F. N. Multiple Regression Analysis — $8.00
American Educational Research Association
1126 Sixteenth St., N. W.
Washington, D. C. 20036

This tape is an analysis of multiple regression and its relationship to analysis of variance, discriminant analysis, canonical correlation, multivariate and factor analysis. Heavy stress is put on examples and educational uses of multiple regression. The tape is worthwhile but this topic would be

better served with a tape in conjunction with a book or a workbook. The work covered is too difficult for the average basic research student but may be useful with more advances students.

Open Education, The Significance of Significance — $10.00 (with The Use of Factor Analysis)
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This tape develops a philosophical and technical discussion by Baysian and traditional statisticians. Discussion of error of measurement, levels of significance and the interpretation of results is also given. The tape gives a good introduction to Baysian statistics and talks about some of the differences between statistical and practical significance. Although the tape is not very interesting in the beginning it quickly picks up to become a useful and interesting presentation for a student with an introductory knowledge of research.

Open Education, The Use of Factor Analysis — $10.00 (with The Significance of Significance)
Harper and Row, Publishers
10 East 53rd St.
New York, New York 10022

The uses of factor analysis and the problems of using factor analysis are discussed in this tape. Examples of good and poor uses are given as are some practical and mathematical interpretations and misinterpretations. The tape gives an introduction to factor analysis to the beginning student but makes confusing references to other unavailable materials.

Workbooks

Content Area

Basic Research

Borg, W. R., M. D. Gall and N. T. Bell $2.95
Student Workbook in Educational Research
David McKay Company
750 Third Avenue
New York, New York 10017

This workbook has been developed to accompany Educational Research- An Introduction It can be used with other texts, but not nearly as well. Its purpose is to get the student actively involved in the learning process as opposed to just reading the text. It includes short summaries of each Educational Research chapter with note taking guides, application problems, a chapter glossary and a chapter test. It has been most useful when used by students in chapter areas in which they were weak or unclear.

Mouly, G. J. The Science of Educational Research,
Student Workbook
Van Nostrand Reinhold Company
450 West 33rd St.
New York, New York

This work book is a compilation of over 2100 multiple choice test items on the content of a basic educational research course. The general topic areas covered include sampling, statistics, the library, scientific method and the nature and evaluation of science. The workbook is a reasonable source of objective test items on educational research. The suggested usage is for students but that does not seem feasible, because an objective test and answers, with no other information, is not a format conducive to increasing knowledge or interest.

Open University, The Nature of Educational Research $2.50
Harper and Row, Publishers
10 West 53rd Street
New York, New York 10022

This workbook is a basic introduction to research including why we should do research, the scienficic method, the various types of research and how to

choose research topics. It includes an excellent glossary of terms that are used in the workbook. The workbook is fairly superficial and not particularly interesting, but it may be used to supplement other materials.

Wallen, N. Educational Research: A Guide to the Process $5.95
Wadsworth Publishing Co.
Belmont, California 94002

This workbook is a six chapter guide to research that covers the basic areas of educational research. It follows a sample problem through the research process and through the use of exercises encourages students to do the same with their own projects. It is written very clearly and encourages student participation but gives little in the way of theory. Student feelings about it are mixed with some feeling that it is too easy and that it is boring for someone who is not interested in the sample problem which deals with open education.

Developing Problems and Hypotheses/Sampling

Open University, Research Design $3.25
Harper and Row, Publishers
10 East 53rd St.
New York, New York 10022

This workbook covers hypotheses generating, literative review and sampling. The sampling section describes differing sampling procedures, errors and distributions. Thw workbook also includes a comprehensive glossary. It is a good supplement to a textbook but does not stand alone well.

Instrumentation

Open University, Data Collection $4.25
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This workbook deals with the practical aspects of data collection. It includes information on the principles of measurement, principles of constructing a measuring instrument and the types of measures available.

Design

Open University, Experiment in Educational Research $2.25
Harper and Row, Publisher
10 East 53rd St.
New York, New York 10022

This workbook deals with basic research designs and sources of internal and external invalidity. Randomized block and straight randomized designs are dealt with as are t-tests and anlaysis of variance. The workbook deals with a fairly complete subject clearly but does tend to oversimplify. The students who have used the workbook in conjunction with a class have felt that is cleared up some of their confusion.

Statistics

Gorow, F. F. Statistical Measures: A Programmed Text
Chandler Publishing Company
124 Spear St.
San Francisco, California 94105

This workbook is a branching programmed instruction text covering the measures of central tendency, variability and correlation. A summary section gives the formulas for all the statistics covered by the workbook. In order to use this workbook the student is required to have no math background beyond multiplication and division. Although the book is elementary it is useful for remedial work or for "catch-up" for students with no math background.

Koosis, D. J. Statistics $2.95
John Wiley and Sons
605 Third Avenue
New York, New York 10016

This workbook is a programmed text in statistics that covers descriptive statistics, populations and samples, hypothesis testing, analysis of variance, correlations and chi square. The text is very comprehensive with a strong slant to the applied including many practical problems dealing with the application of knowledge. The appendix contains the critical value tables for the tests covered in the text. Students have found the book helpful in both research courses and basic statistic courses and have responded positively to both its content and format.

Lang, G. Statistics for Research and Measurement $1.25
Gerhard Lang
439 Lyncrest Avenue
Fairlawn, New Jersey 07410

This workbook is a short introduction to descriptive statistics, correlations, chi squares and t-tests. Starting with an explanation of statistical terms and symbols it continues with many explanatory diagrams and examples. Student exercises are also given. This workbook is a helpful introduction for students who fear statistics.

Open University, Data Analysis $4.95
Harper and Row, Publishers
10 East 53rd Street
New York, New York 10022

This workbook is an introduction to descriptive and inferential statistics. Broken into four topic areas, description of survey data, relationships between variables, hypothesis testing and evaluation, the workbook covers measures of correlation and parametric and non-parametric statistics. Student exercises are used extensively throughout the workbook.

Critiquing Research

Open University, Evaluation and Assessment of Educational Research $3.25
Harper and Row, Publishers
10 East 53rd St.
New York, New York 10022

In this workbook students are asked to give criteria for category research. Three research articles are also given with a critical analysis of each article. The students are asked to read the articles and revise the evaluative criteria based on the articles and the analysis. The use of a glossary and the incorporation of pictures make this an interesting workbook but id does contain distracting references to other materials. However, it does make a good final exercise for an introductory research course.